

colorants and inks intended for use in ink-jet printing. These are briefly summarized on page 1 of the instant specification (e.g., page 1, lines 7-13). Thus, the colorant should be stable in the ink and not precipitate and block the tiny printer nozzles (which are typically half the diameter of a human hair). Yet at the same time the colorant desirably has limited solubility so as to enhance its wet fastness when printed. The colorant must also have the properties which allow the ink-jet inks to form discrete droplets and so fire effectively. The colorant, when printed, must also display an exact chroma and hue so that the full range of colors may be achieved. The above requirements represent a major technical challenge.

A person faced with the demands imposed by ink-jet printing would be unlikely to look for a solution in Maeda, which, as mentioned above, relates to the use of dyes in optical recording, particularly in making recordable compact discs. Such uses of dyes have very different technical requirements from uses in ink-jet printing, insofar as the dye used in optical recording is first dissolved in an organic solvent and then applied to the substrate by spin coating. In spin coating, the coating solution is firstly deposited on to the substrate via a dispenser. The substrate is then rotated to give a thin even film of the coating solution from which the solvent evaporates to yield a coated substrate. The quality of the coating is dependant on many interrelated factors, e.g., surface tension, viscosity, and rotation rate. Thus, spin coating does not involve ejection of liquids in droplet form through nozzles of such extremely small diameter. Consequently, optimizing the aqueous solubility of the dye is not an issue.

In view of these differences between spin coating and ink jet printing, a person faced with developing a colorant for use in ink-jet printing would be very unlikely to consult Maeda. Even if a person of ordinary skill working in the ink jet field did consult Maeda, it would not even remotely suggest that the dyes disclosed therein would be useful for ink-jet printing inks. Accordingly, there is no suggestion or motivation in the art to modify Maeda to obtain the present invention. For this reason alone, the applicants respectfully submit that a *prima facie* case of obviousness has not been established.

It is also worth noting that the disclosure of Maeda encompasses many thousands of dyes, and nothing in Maeda would motivate a person of ordinary skill to select the dyes of the present invention out of the broad disclosure therein.

Indeed, if a person of ordinary skill in the art even considered the Maeda reference, they would be more likely to synthesize dyes based on the Examples and

structures disclosed therein and thus would not arrive at the dyes of the present invention. As the Examiner correctly points out on page 3 of the Office Action, none of the dyes specifically disclosed in Maeda have a quinoline ring bearing an amino substituent. Thus, to arrive at the present invention starting from Maeda, a person of ordinary skill in the art would have to do the following:

- Decide to consult Maeda despite the fact that this reference is concerned with spin finish, a technology far removed from ink-jet printing.
- Decide to ignore all of the Examples and preferences in Maeda and instead pick quinoline as ring B. In this regard, the Examiner will note that in the compounds of the present invention, the quinoline ring cannot correspond to ring A of Maeda since the quinoline N in the compounds of the present invention is not ortho to the azo bond as required in Maeda.
- Decide that the essential substituent "X" in the compounds of Maeda should not be ortho to the linking azo bond but para.
- Decide that the essential substituent "X" need not be a group with an active hydrogen (see the definition of R¹ and R² in claim 1 and Examples 4, 5 and 6 in the present application).

Applicants respectfully submit that one of ordinary skill in the art would not take the above steps if they did not know of the invention beforehand. In other words, one of ordinary skill in the art would not arrive at the present invention based upon the disclosure in Maeda without resorting to inappropriate hindsight reconstruction.

In sum, applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness in rejecting claims 1-8, 12 and 14 over Maeda. Firstly, there is no suggestion or motivation to modify Maeda, which relates to the use of dyes in optical recording, to arrive at the compounds of the claimed invention, which were synthesized to solve many of the problems of ink-jet printing inks. Secondly, given the thousands of dyes disclosed in Maeda and the vastly remote chance that one of ordinary skill in the art would follow the path outlined above, there would be no reasonable expectation of success in modifying Maeda to arrive at the present invention. Thirdly, Maeda does not teach or suggest all of the limitations of

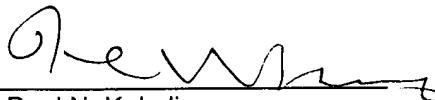
the claimed invention, including, for example, a quinoline N that is not ortho to the azo bond as required in ring A of Maeda.

Accordingly, claim 1 and its dependent claims 2-8, 12 and 14 are all nonobvious over Maeda.

Favorable reconsideration with allowance of the application is requested.

Respectfully submitted,

MORGAN LEWIS & BOCKIUS LLP

By 
Paul N. Kokulis
Reg. No. 16773

Date: January 10, 2007

Customer No. 09629

1111 Pennsylvania Avenue, N.W.

Washington, D.C. 20004

Phone: (202) 739-3000

Facsimile: (202) 739-3001

Direct: (202) 739-5455